Students' Corner
Original Article

Knowledge of first aid and basic life support amongst medical students: a comparison between trained and un-trained students

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Abstract

Objective: To compare the level of knowledge of medical students trained in first aid with those with no training.

Methodology: This study was conducted on a convenience sample of 250 (125 trained and 125 untrained) medical students. A pre-tested self administered questionnaire was used for data collection. The questionnaire covered all the major topics of FA-BLS.

Results: Amongst the trained students 99 (79.2%) had been trained at their respective medical colleges. The correct responses by the trained students were significantly better than untrained students regarding CPR, Recovery position, Asthma and Bleeding. The mean number of correct answers for trained students was 6.13 ± 2.1 while 4.94 ± 2.06 out of the total 13 questions for untrained students.

Conclusion: Although the knowledge of trained students was found to be better than those of untrained students yet the mean of trained students was less than 50% which is not satisfactory. In order to improve the knowledge of medical students on first aid, their knowledge should be reinforced every year.

Keywords: Medical students, Basic life support, First aid (JPMA 61:613; 2011).

Introduction

First aid is the initial assistance or treatment given at the site of accident to someone who is injured or suddenly taken ill, before the arrival of ambulance.[1] A first aid provider should be able to assess the situation quickly and calmly, deal with life threatening conditions meanwhile protecting him/her self from the danger, obtain medical aid and call an ambulance in case of serious injury or illness.

Knowledge of first aid amongst medical students has always been a neglected subject. Hence it should not be surprising to note that even junior doctors at certain hospitals cannot perform the first aid skills satisfactorily.[2] The significance of training health care professionals in first aid and basic life support (FA-BLS) is now acknowledged worldwide.[3] A number of programmes have already been conducted to train people of different fields in this subject.[4-9] These training programmes have provided students with adequate knowledge of FA-BLS.[3]

Until recently there were only few medical colleges in Pakistan where First-Aid was taught as a separate subject. The earthquake of October, 2005 has drawn attention of the authorities towards training people for emergency medicine. Although emergency medicine is unsuccessful without first-aid.[8] but even in presence of limitations, the basic training programme can prove to be helpful for skill-based peer education, especially for developing countries like Pakistan.[9]

There is no published data regarding knowledge of first aid amongst medical students or doctors in Pakistan to date according to our knowledge.

The objective of the study is to assess the knowledge

of medical students who have been trained in first aid and to compare their knowledge with those who have not received any training.

Methodology

The study was conducted in three private medical colleges of Karachi. A total of 250 students studying in first four years of MBBS were selected through convenience sampling. Out of these, 125 had been trained through First Aid training programme either in their Medical Schools or elsewhere, whereas, 125 had not taken any formal training for First Aid.

A pre-tested self administered questionnaire was used for data collection to assess the knowledge of students regarding administration of First-Aid in different situations. The questions were developed in the form of scenarios depicting real life situations and covered all the important aspects of First Aid like CPR, burns, bleeding, fractures, emergencies like asthma, heart attack, recovery position, choking etc.

The survey was conducted through group administration separately for all the years. The students were briefed about the objective of the study and consent was taken for participation.

The collected data was entered and analyzed using SPSS (statistical package for social sciences) version 13. Frequencies/percentages were taken for categorical variable. Chi Square Test was applied for comparing the number of correct responses among trained and untrained students and Independent Sample t-test was applied to compare the means of trained and untrained at 95% confidence interval.

Results

A total of 250 students filled the questionnaire. Among them 125 were trained and rest of the students had not received any formal first-aid training. Amongst the trained students 99 (79.2%) students had been trained at their respective medical colleges. Twenty eight (22.4%) trained and 10 (8%) untrained students had ever provided first aid during an emergency.

Hundred and four (83.2%) trained and 75 (60%) untrained students responded correctly that they would first look for response and check for airway, breathing and circulation (ABC) in an unconscious casualty ($p < 0.001$). Seventy one (56.8%) trained and 43 (34.4%) untrained students knew that they have to give 15 chest compressions alternate with 2 ventilations while doing cardio-pulmonary resuscitation (CPR) on an adult ($p < 0.001$). Sixty three (50.4%) trained and 34 (27.2%) untrained students ($p < 0.001$) knew the correct position of hands while doing CPR i.e. heel of one hand placed on xiphisternum and fingers of the other hand interlocked from above. Twenty Eight (22.4%) trained and 11(8.8%) untrained students knew the correct recovery position (p-value 0.002).

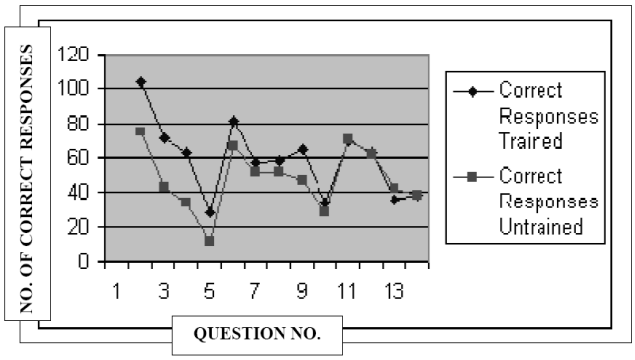

Figure: line graph comparing the number of correct responses for trained and untrained students.

Eighty Two (65.6%) trained and 67 (53.6%) untrained students told that they would make the patient sit with bending forward during an acute attack of asthma. Fifty seven (45.6%) trained and 52 (41.6%) untrained students knew that the patient of heart attack should be laid down with knees flexed to give him maximum relief.

Replying to the query of number of slaps to be given between the shoulder blades for accidentally choking a bolus, 57 (45.6%) trained and 52 (41.6%) untrained students marked the correct choice. Sixty five (52%) trained and 47 (37.6%) untrained students said they would elevate the wounded part and apply pressure with their fingers or palm to control bleeding from a cut wound in the forearm (p 0.015).

Thirty four (27.2%) trained and 28 (22.4%) untrained students could tell that they have to put a patient with convulsions in recovery position to avoid any aspiration and tongue rolling. Sixty nine (55.2%) trained and 70 (56%) untrained students said that they would immobilize a fractured forearm and support it with a splint.

Sixty three (50.4%) trained and 62 (49.6%) untrained students said that they would make the patient immobilize and support the neck in case of a patient with back injury. Thirty six (28.8%) trained and 42 (33.6%) untrained students correctly marked that they would put the hand in cold water in case it gets burnt. Thirty eight (30.4%) of both the trained and the untrained students expressed that they would give plenty of water to a patient who has accidentally ingested acid (Table and Figure).

The maximum number of correct answers for trained students was 11 and minimum 4 with a mean of 6.13 ± 2.1 questions. The mean for the correct responses for the untrained students was 4.94 ± 2.06 question out of the total 13 questions. Correct answers of trained students was significantly higher than the untrained ($p < 0.001$). Hence the

Table: Correct responses of trained and untrained students for scenario based questions to assess their knowledge about First-Aid.

S. No.	Question Title	Correct Responses (%)		P value (one sided)
		Trained (n=125)	Untrained (n=125)	
1	Unconscious Victim (ABC)	83.2	60	<0.001
2	Needs CPR (15:2)	56.8	34.4	<0.001
3	Position of hands while doing CPR	50.4	27.2	<0.001
4	Recovery position	22.4	8.8	0.002
5	Asthma	65.6	53.6	0.035
6	Choking	45.6	41.6	0.305
7	Heart Attack	46.4	41.6	0.400
8	Bleeding	52	37.6	0.015
9	Convulsions	27.2	22.4	0.232
10	Fracture	55.2	56	0.500
11	Back Injury	50.4	49.6	0.500
12	Burn	28.8	33.6	0.248
13	Poisoning	30.4	30.4	0.555

knowledge of trained students proved to be significantly better than those of the untrained students at 95% confidence level.

Discussion

There is little published data available on the knowledge and skills of first-aid in trained and untrained medical professionals. Some studies have been carried out on bystanders, coaches and general public about knowledge and their role in giving first-aid.

This study focused on medical students studying in private medical colleges. Out of 250 medical students who participated in the study 50% were untrained and rest were trained for first aid and basic life support. The questionnaire consisted of 13 questions on first aid; none of the students was able to answer all questions correctly.

Majority of the trained students (79.2%) had received training at their respective medical colleges which shows that some private medical colleges have now added first aid training as a part of their medical curriculum.

Although the knowledge of trained students (mean correct responses 6.13 ± 2.1) was found to be better than those of untrained students (mean correct responses 4.94 ± 2.06) yet the mean of trained students was less than 50% which is not satisfactory. On the other hand, a study conducted by Starc B et al, showed that all the 1st year medical students showed satisfactory skill of first aid when evaluated immediately after the completion of course.[10] A study conducted by Jiang YB et al showed that the trained students had better theoretical knowledge than untrained.[11] Parnell MM et al. conducted a study in New Zealand on high school students which showed the knowledge of trained students was better than those of untrained students but was still unsatisfactory.[12]

Regarding the first aid management of an unconscious patient, popular approach was to check for Airway, Breathing and Circulation by the trained and untrained students, though the number was slightly higher for the trained ones. In a study carried out by Wiese C et al in Germany on bystanders trained for BLS 66% of the participants did not check for breathing at all (18 participants with previous knowledge and 48 participants without previous knowledge).[13] In Cardio-Pulmonary Resuscitation the knowledge of trained students was far better than untrained. Consensus was to give alternate 15 compressions with 2 ventilations. The study conducted by Wiese C HR et.al in Germany also showed significant difference among trained and untrained bystanders.[13]

For emergency management of burns, both the groups had unsatisfactory knowledge but untrained students surprisingly showed slightly better knowledge (trained = 28.8%, untrained = 33.6%). A study conducted among General physicians in Turkey by Kut A, et al. showed similar results.[14]

Although gag reflex is a contraindication in cases of acid ingestion about half of the students from each group replied that they would try it as first aid in a person who has ingested acid.

In order to improve the knowledge of medical students on first aid, their knowledge should be reinforced every year. Similar recommendation was also given by Christopher HR Wiese et al. about lay persons.[13]

Although formal practical training might be the best way to teach first aid, other means such as electronic media or internet can be used to teach or reinforce knowledge of first aid. This training should not only be provided to the health care professionals but also to lay persons. A study conducted in Australia concluded that even online training courses can also satisfactorily increase the first aid knowledge of high school students.[3] Moreover, First Aid and basic life support should be made a compulsory part of 1st year MBBS curriculum. Also the standard of all the existing training programs should be raised so that the trained students are competitive enough to provide first aid independently.

More studies should be conducted to evaluate the knowledge and skills of First Aid amongst doctors in Pakistan.

Conclusion

Although the knowledge of trained students was found to be better than those of untrained students yet the mean of trained students was less than 50% which is not satisfactory. In order to improve the knowledge of medical students on first aid, their knowledge should be reinforced every year. Also the standard of all the existing training programmes should be raised so that the trained students are competitive enough to provide first aid independently. More studies should be conducted to evaluate the knowledge and skills of First Aid amongst doctors and medical students in Pakistan.

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